

Washington State On-Site Wastewater Rule Development Committee

May 6, 2003

SeaTac Occupational Skills Center

18010 8th Avenue South

SeaTac, Washington

(Meeting # 11 notes)

<i>Representation</i>	<i>Members / Alternates</i>	2/13	3/28	5/22	7/17	9/19	10/2 4	12/1 2	1/23	3/13	4/24	5/6	6/18
WA Assoc of Realtors	Slough, Frederick	+	+	+	+		+			+	+		
	Stout, Larry		+										
Building Industry of WA	Stanton E.C.	+	+	+		+		+		+		+	
	Kunkel, Jenn (T. Neal)	+		+	+	+	+	+	+	+	+	+	
On-Site Wastewater Designer	Wecker, Steve	+	+	+	+	+		+	+	+	+	+	
	Lombardi, Pete	+					+	+		+			
On-Site Wastewater Installer	Stuth, Jr., Bill	+	+	+	+	+	+	+	+	+	+	+	
	Stonebridge, Jerry	+											
Certified Proprietary Device Specialist	Garrison, Carl	+	+	+	+	+	+	+	+	+	+	+	
	Morris, Mike												
OSS Pumper/O&M Specialist	Tacia, Reed	+	+	+	+	+	+	+	+	+	+	+	
	Markle, Steve	+	+			+	+	+	+	+	+	+	
Proprietary Products At-Large	Patterson, Jim	+	+	+		+	+	+	+	+	+	+	
Planning WA Assoc of Counties	Shuttleworth, Mike		+	+	+	+	+		+	+			
Local Health Jurisdictions (Westside-Urban)	Deeter, Jerry	+	+	+	+	+	+	+	+	+	+	+	
	Starry, Art	+			+		+		+			+	
Local Health Jurisdictions (Westside-Rural)	Higman, Keith		+				+	+		+			
	Fay, Larry	+			+		+	+					
Local Health Jurisdictions (Eastside-Urban)	Perkins, Bruce		+	+					+	+	+	+	
	Dawson, Rick	+	+	+	+	+	+		+	+	+	+	
Local Health Jurisdictions (Eastside-Rural)	Barry, Kevin	+	+	+	+	+	+		+	+	+	+	
	Wolpers, John												
Soil Scientist	Cogger, Craig						+	+	+	+			
	Hermann, C			+									
Puget Sound Water Quality Action Team	Hull, Terry	+	+	+	+	+	+	+	+	+	+	+	
Indian Health Services													
	Dalton, Robin	+	+	+	+	+							
WA Shellfish Industry													
	Dewey, Bill			+	+	+	+		+	+	+	+	
WA Dept of Ecology	Taylor, Bill					+		+					
	Kimsey, Melanie		+		+	+	+		+		+	+	
WA Assoc of Water & Sewer Dist	Shaleen-Hansen, Mary	+					+						
	Hart, James		+	+		+						+	
Consumer	Wiggins, Margaret	+	+							+	+		
	Smith, Denise	+	+	+	+	+	+		+		+	+	
WA Dept of Health	Salkind, Mark	+	+	+		+	+	+	+	+	+	+	
	Soltman, Mark	+	+	+	+	+	+	+	+	+	+	+	
People for Puget Sound													
	Wishart, Bruce												
WA Public Utilities Districts													
	Kukuk, Ken												
Professional Engineer	Robertson, Robbie												
	Yuhl, Mike	+	+	+		+	+	+		+	+	+	
Tribal Government													
	McMurtrie, Doug	+	+	+	+	+	+		+	+	+	+	

+ Present at meeting, **Members** Alternates

Onsite Rule Development Committee Meeting

May 6, 2003

SeaTac Occupational Skills Center
18010 8th Avenue South
SeaTac, Washington 98148
(206) 433-2525

Time	Agenda Item	Outcome	Lead
10:00	Welcome		Maryanne Guichard
10:10	Agenda		Eric Svaren
10:15	Treatment levels - Continuation of discussion	Discussion/ Decision	Dave Lenning
11:30	Minimum land areas	Introduction of proposal	Dave Lenning Melanie Kimsey
12:30	Lunch		
1:00	New policy issues	Ranking results Discussion & Decisions	Eric Svarin
2:55	Wrap-up		Eric Svaren
3:00	Adjourn		

ONSITE SEPTIC SYSTEM
RULE DEVELOPMENT COMMITTEE NOTES
 Meeting 11
 6 May 2003

<p>(Notes from flip charts)</p> <p>Housekeeping</p> <p>July 23 meeting added</p>	<p>(Staff notes)</p> <p>Maryanne Guichard reminded the RDC of the briefing to the State Board of Health on May 14th. Marianne Siefert distributed a memo to Board members about the RDC.</p>
<p><u>TRC Recommendations</u></p> <p>Treatment Levels</p> <p>Treated pollutant load = Tns + Ts (Approved)</p> <p>Group components by treatment capacity (Approved)</p> <p>Parameters: CBOD₅, TSS, Fecal coliform, Nitrogen (Approved)</p> <p>Intermediate Treatment Level? (Approved)</p> <p>Level E (Re-approved)</p> <p>Level D (Re-approved)</p> <p>Level A 10/10/200 (Approved)</p> <p>Level B 25/30 or 10/10? (No decision)</p>	<p>Report from the TRC</p> <p>Dave Lenning briefed the RDC and distributed three handouts summarizing the TRC Recommendations:</p> <ul style="list-style-type: none"> - For Product Performance Testing Levels and Their Application to Repair of Onsite Sewage Systems - For Product Performance Testing Levels and Their Application to New Onsite Sewage Systems - For Using Disinfection to Meet Product Performance Testing Levels <p>(These are included at the end of the notes.)</p>
<p>Level C 25/30/10,000 (No decision)</p> <p>Level N “may be added” not “to be added”</p> <p>Carl: measure – lbs/acre/day</p> <p><u>Treatment levels (Tables 1V-A & 1V- B) – conceptual agreement?</u></p> <ul style="list-style-type: none"> - increased increments of vertical separation - soil types (Approved) 	

<p>Soil and site conditions insufficient in all cases (Yes)</p> <p><u>Additional protection for Water Resource Areas? (No go)</u></p>	
<p><u>New policy issue process</u> 2 min. 1) Proposer makes case 10 min. 2) Discussion Q/A 3) Vote – to –vote (majority) Green card – proceed to vote Red – continue discussion 10 min. 4) Extra discussion 5) Final vote (Consensus) Green: Adopt Red: Reject Yellow: Live with it</p> <p>(Issues ranked highest priority by the RDC:) 8, 2, 3, 1, 9, 10</p>	<p>Discussion of highest priority “new issues”</p> <p>RDC Decisions in bold.</p>
<p>Issue 8: Cut banks: Language committee to massage to address surfacing effluent. Agreed</p>	<p>Proposer: Mike Yuhl Cuts, and/ or Banks and Location Subsections: 246-272-0010 and 246-272-0210 To eliminate or change the definition.</p>
<p>Issue 2: Surface water – Specify minimum time. No change</p>	<p>Proposer: Steve Wecker In the definition of surface water define “significant period”.</p>
<p>Issue 3: Product Testing Definition of septic tank effluent CBOD₅ 200 TSS 80 30-day average FOG 20 Maximum rate Treat high-strength waste to get it down to residential levels</p>	<p>Proposer: Steve Wecker Would like a definition of typical residential waste. Is this different from maximum loading rate?</p>
<p>Issue 1: As-built drawings. - Leave as is - Look at DOL requirements of designers</p>	<p>Proposer: Larry Fay Section 246-272A-0260 Inspection. Should the provision for installers and/or designers to create the as-builts be re-visited? Staff will ask DOL for an interpretation.</p>

Issue 9: Connection to Public Sewer Reject	Proposer: Larry Fay Should requirement be made to connect to sewer when available and within 200feet for new and repaired systems?
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Meeting evaluation:

- | | |
|--|---|
| Worked well | Could be improved |
| <ul style="list-style-type: none"> • Assertive facilitation | <ul style="list-style-type: none"> • Getting to end without dealing with O&M |

Future meetings:

- June 18, 2003
- July 23, 2003

The following four handouts were distributed at the meeting:

Summary of TRC Recommendations For Product Performance Testing Levels and Their Application to Repair of On-Site Sewage Systems

(This document is intended to augment the general summary of TRC recommendations regarding product performance testing levels.)

What does the TRC Recommend?

- When on-site sewage systems are repaired, the new construction requirements established in rule apply. Where these cannot be met due to insufficient horizontal or vertical separation to sources of drinking water or surface water, the following revised Table VI is proposed.

TABLE VI: Treatment Component Levels for Repairs by Vertical Separation, Horizontal Separation, and Soil Type

Vertical Separation	Horizontal Separation															
	< 25 feet				25 < 50 feet				50 < 100 feet				> 100 feet			
	Soil Type				Soil Type				Soil Type				Soil Type			
	1	2	3 - 4	5 - 6	1	2	3 - 4	5 - 6	1	2	3 - 4	5 - 6	1	2	3 - 4	5 - 6
< 12"	A	A	A	A	A	A	A	A	A	A	B	B	B	B	B	B
=12" <18"	A	A	A	A	A	B	B	B	A	B	B	B	Conforming Systems			
=18" <24"	A	A	A	A	A	B	B	B	A	B	C	C				
=24" <36"	A	B	B	B	B	C	C	C	B	C	C	C				
=36"	A	B	B	B	B	C	C	C	B	C	E	E				

Distribution requirements in final treatment and dispersal component – Pressure distribution with timed-dosing (If timed dosing to a treatment component will in turn provided timed-dosing to the final treatment & dispersal component, time-dosing is not required for the drainfield/final treatment & dispersal component)

This table varies from the existing table (TABLE VI) in two ways:

- 1) The Vertical Separation categories are expanded: The (=12" <24" has been split into two, =12" <18" and =18" <24"; =36" < 60" replaces =36" and the categories now ends at =60"; and,
- 2) The table integrates soil types.

By expanding the range of Vertical Separation categories and integrating soil types, the proposed performance levels can be more accurately applied thus maintaining the balance between wastewater pollutant load and the treatment system components (pre-treatment and final soil treatment) under a wide range of site conditions.

- ❑ Modifying the range of treatment performance levels to respond more accurately to the range of site conditions and capacity to provide in-the-soil final treatment.

Comparison of Current and Proposed Performance Levels, Related to Site Capacity to Provide Final Treatment

Current Framework / Levels	TS 1	TS 2		Septic Tank Effluent
Site Risk	Highest	Moderate		Lowest
Proposed Framework / Levels	A	B	C	E

Site Risk: Sites with the lowest capacity to provide Final Treatment and Dispersal (poorest soils and shallowest vertical separation) place public health protection at the highest level of risk.

Comparison of Current and Proposed Performance / Testing Levels

Levels	Parameters				
	CBOD ₅ (mg/L)	TSS (mg/L)	FOG (mg/L)	FC (#/100 ml)	TN (mg/L)
Current Treatment Standard 1*	10	10	—	200	—
<i>Proposed Testing Level A</i>	10	10	—	200	—
<u>Current Treatment Standard 2*</u>	10	10	—	800	—
<u>Proposed Testing Level B</u>	25	30	—	1,000	—
<u>No Current Level</u>			—		—
<u>Proposed Testing Level C</u>	25	30	—	10,000	—
Current Effluent Quality Drainfield Size Reduction Threshold	10	10	—	—	—
<i>Proposed Testing Level D</i> (only for the purpose of reducing drainfield size based upon effluent quality)	25	30	—	—	—
Residential Septic Tank Effluent (in guidance)	200	125	25	—	—
<u>Proposed Testing Level E</u>	200	80	20	—	—
<u>No Current Level addressing Nitrates</u>	—	—	—	—	
<i>Proposed Testing Level N</i> (to be added to any of the 5 levels where nitrate pollution is an issue.	—	—	—	—	20

Current TS 1 & 2 establish levels for BOD₅, not CBOD₅
Values for BOD₅, CBOD₅ and TSS are 30-day averages; FC values are 30-day geometric means.

Summary of TRC Recommendations For Product Performance Testing Levels and Their Application to New On-Site Sewage Systems

What are the core concepts or main issues with respect to performance and product testing levels?

- ❑ Site conditions, such as the type of soil present and the depth of soil above the water table, limit the site capacity to treat sewage in the receiving soil environment. As these limitations increase, the level of pre-treatment (that treatment that occurs before discharge to the soil for final treatment) must also increase to maintain a balance between the pollutant load of the sewage, and the treatment provided by the overall on-site sewage system.
- ❑ Variable performance levels can be identified to correspond to the range of site and soil conditions.
- ❑ By standardizing product testing protocols and using the test results, treatment products can be grouped according to performance levels. Different level systems are then applied to different site conditions.

What does the current regulatory framework provide?

The existing regulatory framework applies the concept that as the capacity of a site to provide treatment in the receiving soil environment decreases the level of treatment that must occur before discharge to the soil increases. Currently three levels of pre-treatment exist: Treatment Standards 1 & 2, and residential septic tank effluent. These standards are applied to sites according to their capacity to provide final treatment in the soil. Site risk is identified only by soil type and vertical separation. Other measures or characteristics of site susceptibility or vulnerability are not currently addressed.

What problems, if any, do the current standards present?

The existing standards represent a significant range from high to low levels of pre-treatment, but do not provide an evenly distributed set of standards. In the absence of an intermediate standard, some sites are over-protected while others are under-protected. The highest standards are applied to some moderate risk sites as well as high risk sites and the lowest standards are applied to other moderate risk sites as well as low risk sites.

What does the scientific literature and national experience have to offer on the topic?

Soils possess capacity to treat wastewater, protecting public health and the environment. Their capacity to do so varies with soil type (coarse to fine-textured, for example) and soil depth (vertical separation). Design consideration is also given to potential negative impact from on-site sewage systems or the degree of site sensitivity. Some sites with

similar soil type and vertical separation present a greater risk to public health or the environment from the use of on-site sewage systems compared to other sites. Sites may be at greater risk due to aquifer or surface water characteristics that make them more vulnerable to impacts from on-site treatment systems. Increasing levels of wastewater treatment prior to discharge to the soil for final treatment is one approach to addressing these higher risk sites.

What are the findings of the TRC regarding performance and product testing levels?

- ❑ **The current regulatory framework results in over-protection in some settings while under-protecting in others due to the polarity of the existing treatment standards. A mid-level standard is needed to address sites with moderate capacity to provide final treatment.**
- ❑ **Performance Levels are most appropriately applied in the product and system-testing arena. The existing and proposed numerical standards are based on 30-day averages and 30-day geometric means, with identified protocols establishing the number of samples to be evaluated. These standards are misapplied when used as field-based compliance standards, where typically only a few samples are drawn.**

What does the TRC Recommend?

1. Modify the range of treatment performance levels to respond more accurately to the range of site conditions and capacity to provide in-the-soil final treatment.

Comparison of Current and Proposed Performance Levels, Related to Site Risk

Current Framework / Levels	TS 1	TS 2		Septic Tank Effluent	
Site Risk	Highest	Moderate			Lowest
Proposed Framework / Levels	A	B	C		E

Site Risk: Sites with the lowest capacity to provide Final Treatment and Dispersal (poorest soils and shallowest vertical separation) place public health protection at the highest level of risk.

Comparison of Current and Proposed Performance / Testing Levels

Levels	Parameters				
	CBOD ₅ (mg/L)	TSS (mg/L)	FOG (mg/L)	FC (#/100 ml)	TN (mg/L)

Current Treatment Standard 1*	10	10	—	200	—
<i>Proposed Testing Level A</i>	10	10	—	200	—
<u>Current Treatment Standard 2*</u>	10	10	—	800	—
<u>Proposed Testing Level B</u>	25	30	—	1,000	—
<u>No Current Level</u>			—		—
<u>Proposed Testing Level C</u>	25	30	—	10,000	—
Current Effluent Quality Drainfield Size Reduction Threshold	10	10	—	—	—
<i>Proposed Testing Level D</i> (only for the purpose of reducing drainfield size based upon effluent quality)	25	30	—	—	—
Residential Septic Tank Effluent (in guidance)	200	125	25	—	—
<u>Proposed Testing Level E</u>	200	80	20	—	—
<u>No Current Level addressing Nitrates</u>	—	—	—	—	
<i>Proposed Testing Level N</i> (to be added to any of the 5 levels where nitrate pollution is an issue.	—	—	—	—	20
*Current TS 1 & 2 establish levels for BOD ₅ , not CBOD ₅ Values for BOD ₅ , CBOD ₅ and TSS are 30-day averages; FC values are 30-day geometric means.					

- Treatment systems identified according to the proposed levels (above) are to be applied to sites according to the following Proposed Table IV-A of variable site conditions of Soil Type and Vertical Separation.

This table varies from the existing table (TABLE IV) in two ways:

- The Vertical Separation categories are expanded: The (=12" <24" has been split into two, =12" <18" and =18" <24"; =36" < 60" replaces =36" and the categories now ends at =60"; and,
- The table presents only Treatment Component levels. Distribution Methods are presented in another table, the proposed Table IV-B

These changes along with the proposed Treatment Levels provide a more exact linking of performance levels to site risk.

***Proposed TABLE IV-A
Treatment Component Levels Required by Soil Type & Vertical Separation***

Treatment Component Levels Required				
Vertical Separation	Soil Type			
	1	2	3 — 4	5 — 6
=12" <18"	B	B	B	C
=18" <24"	B	C	C	C
=24" <36"	B	C	C (gravity-flow drainfield allowed) <u>or</u> E (pressure-flow drainfield required)	C (gravity-flow drainfield allowed) <u>or</u> E (pressure-flow drainfield required)
=36" < 60"	B	E	E	E
=60"	C	E	E	E

- To assist clarity and reduce the reliance on footnotes in tables, place the requirements for method of wastewater distribution in the Final Treatment & Dispersal Component in a separate table.

***Proposed TABLE IV-B
Distribution Method Required in the Final Treatment & Dispersal Component***

Distribution Method Required in Final Treatment & Dispersal Component				
Vertical Separation	Soil Type			
	1	2	3 — 4	5 — 6
=12" <18"	Pressure	Pressure	Pressure	Pressure
=18" <24"	Pressure	Pressure	Pressure	Pressure
=24" <36"	Pressure	Pressure	Gravity Allowed with Treatment System Level C <u>or</u> Pressure required with Treatment	Gravity Allowed with Treatment System Level C <u>or</u> Pressure required with Treatment

			System Level E	System Level E
=36" < 60"	Pressure	Pressure	Gravity Allowed	Gravity Allowed
=60"	Pressure	Gravity Allowed	Gravity Allowed	Gravity Allowed

Pressure means: *pressure distribution with timed-dosing required (If timed dosing to a treatment component will in turn provided timed-dosing to the final treatment & dispersal component, timed-dosing is not required for the final treatment & dispersal component)*

- The degree of risk to public health and the environment cannot always be determined simply by identifying Soil Type and Vertical Separation. Some sites by their location, hydrogeology or other characteristics are more susceptible to pollutants from on-site sewage systems, and as such are at greater risk.

To address this increased risk, the TRC recommends establishing slightly higher standards for two groups of water resources at greater risk when on-site sewage systems are used. These can be described generally as sensitive drinking water and surface water resources.

Drinking Water Resources

The characteristics of sensitive drinking water resources include, but are not limited to, aquifers of unconfined sand and gravel, glacial outwash aquifers with shallow depth to water, and other high-yielding surficial unconsolidated aquifers of regional importance with rapid recharge due to coarse sand and gravel strata that are used for drinking water. For public drinking water sources, a Wellhead Protection Area rated by the Department of Health as "highly susceptible" would be subject to the proposed increased levels of protection.

Proposed requirements to protect **drinking water** resource areas:

Treatment Component Levels Required				
Vertical Separation	Soil Type			
	1	2	3 — 4	5 — 6
=12" <18"	A	A	A	B
=18" <24"	A	B	B	B
=24" <36"	B	B	C	C
=36 – 60"	B	C	E	E
≥60"	B	E	E	E

Surface Water Resources

Attenuating the potential negative impact of an on-site sewage system on an adjoining surface water resource is typically achieved through a blend of attributes: soil type & depth (vertical separation), horizontal separation, and the level of treatment achieved prior to discharge to the soil for final treatment and dispersal.

Surface waters provide a wide variety of existing and potential beneficial uses throughout Washington State, ranging from aquaculture to recreation to drinking water supply. After exploring the options for delineating individual areas or zones, the TRC recommends establishing a 50-foot wide protective zone along all surface water bodies. This zone would extend 50 feet beyond the existing prohibited zone (various components of on-site sewage systems are typically prohibited within 100 feet of surface waters).

Proposed requirements to protect surface water resource areas:

Treatment Component Levels Required				
<i>Vertical Separation</i>	Soil Type			
	1	2	3 — 4	5 — 6
=12" <18"	A	B	B	B
=18" <24"	B	B	C	C
=24" <36"	B	B	C	C
=36" - 60"	B	E	E	E
≥ 60"	C	E	E	E

Summary of TRC Recommendations For Using Disinfection to Meet Product Performance Testing Levels

(This document is intended to augment the general summary of TRC recommendations regarding product performance testing levels.)

What background information is useful to provide a context to the issues relating to disinfection?

- ❑ The use of disinfection with on-site sewage systems has since 1989 been almost exclusively linked to the application of Treatment Standards 1 & 2. These Treatment Standards are used to match treatment components to sites with soils of limited potential for wastewater treatment or with otherwise limited treatment potential.
- ❑ The NSF Standard No. 40 testing protocol, currently specified in guidance documents and proposed for new rules as the testing protocol for wastewater treatment components, typically reports performance results in CBOD₅, and TSS. Testing for fecal coliform reduction performance is optional with NSF and DOH has identified (in guidance now, proposed for rule) the required number and frequency of samples for fecal coliform analysis.
- ❑ The current DOH *List of Approved Systems and Products* identifies 13 treatment components that meet the BOD₅ and the TSS parameters of TS 1 & 2. Of these 13, only 3 have also been tested for fecal coliform reduction.

What are the core concepts or main issues with respect to the use of disinfection methods and equipment to meet performance and product testing levels?

- ❑ While the chemistry and engineering of disinfection methods is reasonably well established, many disinfection products have not been tested.
- ❑ Disinfection equipment is used on sites with the greatest degree of limitation and public health risk.
- ❑ Reliability of most available disinfection equipment is questionable, at best.
- ❑ Testing fecal coliform reduction performance (in addition to CBOD₅ and TSS) is expensive.

What does the current regulatory framework provide?

- ❑ The rules define Treatment Standards 1 & 2, and delineate the site conditions where systems meeting these standards must be used.

"Treatment standard 1" means a thirty-day average of less than 10 milligrams per liter of biochemical oxygen demand (5 day BOD₅), 10 milligrams per liter of total suspended solids (TSS), and a thirty-day geometric mean of less than 200 fecal coliform per 100 milliliters.

"Treatment standard 2" means a thirty-day average of less than 10 milligrams per liter of biochemical oxygen demand (5 day BOD₅), 10 milligrams per liter of total suspended solids (TSS), and a thirty-day geometric mean of less than 800 fecal coliform per 100 milliliters.

- ❑ The use of disinfection methods and equipment is currently addressed only in guidance documents. The rules are silent regarding the use of disinfection. Allowances and limitations for the use of disinfection to meet the current Treatment Standard 1 or 2 are presented in several technical guidance documents.
- ❑ The *Recommended Standards and Guidance for Effluent Quality-based Drainfields* makes a distinction between treatment components with performance verification for only BOD₅ and the TSS parameters and those with test results for all three parameters (including fecal coliform). Those products with testing for all three parameters of TS 1 & 2 may combine drainfield allowances for vertical separation reduction (below 24 inches) and for drainfield size reduction (up to 50% based on effluent quality). Products with test results for only BOD₅ and the TSS may use one or the other of these allowances, but not both.

What does the scientific literature or the national and local experience have to offer on the topic?

- ❑ Various means of disinfecting wastewater as the final step in wastewater treatment have been successfully applied in municipal wastewater treatment plants for decades. The principles and practices for engineering disinfection of wastewater with chlorine, ultraviolet light, and ozone are well known.
- ❑ Downsizing the technology of disinfection from sewage treatment plant flows (millions of gallons per day) to individual residential flows (typically less than 300 gallons per day) has not been entirely successful.
- ❑ Many local health jurisdictions in Washington, as well as private-sector service providers, report dismal results with the application of disinfection to individual residential on-site sewage systems.

What are the findings of the TRC regarding performance and product testing levels?

- ❑ **Extensive review of the scientific literature regarding soil capacity to treat wastewater constituents supports the implementation of various performance levels with fecal coliform parameters.**
- ❑ **Depending upon the proposed Performance Level (A, B, or C) and the specific treatment component or product, disinfection as part of the treatment train may or may not be needed to meet the fecal coliform parameter.**
- ❑ **Disinfection equipment is typically unproven, untested and unreliable.**

What does the TRC Recommend?

- ❑ **Establish a series of product performance testing levels to address the full range of potential sites for on-site sewage systems. Were site and soil conditions limit the site potential for in-the-soil treatment, the public health will be best protected with the application of a fecal coliform standard for product testing.**
- ❑ **Products being applied to limited sites (where systems tested to Level A, B, or C must be used) must be tested for all three parameters as part of the required product testing established (proposed) in the rules. The use of disinfection equipment that has not been tested should not continue.**

- ❑ **An exception to this would be the continued allowance (perhaps for a period of time) of using “non-tested” disinfection equipment for Level A repair sites.**

Comparison of Current and Proposed Performance Levels, Related to Site Risk

Current Framework / Levels	TS 1	TS 2		Septic Tank Effluent	
Site Risk	Highest	Moderate			Lowest
Proposed Framework / Levels	A	B	C		E

Site Risk: Sites with the lowest capacity to provide Final Treatment and Dispersal (poorest soils and shallowest vertical separation) place public health protection at the highest level of risk.

Comparison of Current and Proposed Performance / Testing Levels

Levels	Parameters				
	CBOD ₅ (mg/L)	TSS (mg/L)	FOG (mg/L)	FC (#/100 ml)	TN (mg/L)
Current Treatment Standard 1*	10	10	—	200	—
<i>Proposed Testing Level A</i>	10	10	—	200	—
<u>Current Treatment Standard 2*</u>	10	10	—	800	—
<u>Proposed Testing Level B</u>	25	30	—	1,000	—
<u>No Current Level</u>			—		—
<u>Proposed Testing Level C</u>	25	30	—	10,000	—
Current Effluent Quality Drainfield Size Reduction Threshold	10	10	—	—	—
<i>Proposed Testing Level D</i> (only for the purpose of reducing drainfield size based upon effluent quality)	25	30	—	—	—
Residential Septic Tank Effluent (in guidance)	200	125	25	—	—
<u>Proposed Testing Level E</u>	200	80	20	—	—
<u>No Current Level addressing Nitrates</u>	—	—	—	—	
<i>Proposed Testing Level N</i> (to be added to any of the 5 levels where nitrate pollution is an issue.	—	—	—	—	20
Current TS 1 & 2 establish levels for BOD ₅ , not CBOD ₅ Values for BOD ₅ , CBOD ₅ and TSS are 30-day averages; FC values are 30-day geometric means.					

Summary of TRC Recommendations For Minimum Land Area (Lot Size)

What are the main issues with respect to lot size?

- Fitting all development on the property, including the on-site sewage system and its replacement area, while maintaining the required horizontal setbacks.
- Supporting the development without degrading the groundwater with nitrates and other chemical pollutants.

What do the current rules require?

- For lots with public water, a minimum size of 12,500 sq. ft. to 22,000 sq. ft. depending upon soil type.
- Smaller existing lots of record may be used if all other parts of the rule can be met.
- Lot size requirements may be met by either of two methods. Method I specifies a minimum size, by soil type and drinking water supply (public or private). Method II provides for a written justification (addressing a variety of development-related issues) to allow a minimum lot size of 12,500 sq. ft. for all soil types.

What does the scientific literature have to offer on the topic?

- Groundwater pollution by nitrate from on-site sewage systems is a public health and environmental concern.
- A review of national field studies correlating on-site sewage system density with groundwater contamination indicates 0.5 – 1.0 acre is needed.
- Mathematical modeling studies suggest a minimum lot size of 0.5 – 1.0 acres.
- Hydrogeological characteristics of some areas may require 2 or more acres to prevent groundwater degradation.
- Groundwater studies in Washington correlate nitrate pollution with on-site sewage systems and recommend increasing lot sizes to address potential nitrate pollution resulting in greater groundwater protection.

What are the findings of the TRC regarding Minimum Lot Size and the use of on-site sewage systems?

- Current lot size requirements in the rules address the physical placement of structures and on-site sewage systems, but do not specifically address impact of nitrogen from on-site sewage systems on groundwater.
- Mitigation of nitrate contamination of groundwater with dilution will require lot sizes of 0.5 – 1.0 acres.
- Treatment technologies to remove nitrate may be available but are neither tested nor approved in Washington.

What does the TRC Recommend?

- Where density exceeds 1 unit per acre, prior to approval of new subdivisions or prior to issuance of a permit for an on-site sewage system, nitrogen removal must be addressed.
- When served by public water supplies, limit gross density to 2 units per acre for all soil types.
- When served by individual water sources, limit gross density to 1 unit per acre for all soil types.
(Unit volume of sewage: single family residence, mobile home in a mobile home park, or 450 gallons/day for other development)
- Delete Method 2 - If a minimum is stated in rule, staying at that minimum is a responsible thing to do.

- Land area under surface water should not be included in meeting the minimum land area requirements.
- Minimum lot size requirements should apply to existing lots as well as newly platted lots.

DRAFT Minimum Land Area Requirements
Single Family Residence or Unit Volume of Sewage

Type of Water Supply	Soil Type (defined by section 11001 of this chapter)					
	1	2	3	4	5	6
Public	0.5 acre ²	21,780 sq. ft.	21,780 sq. ft.	21780 sq. ft.	21780 sq. ft.	21780 sq. ft.
	2.5 acres ³					
Individual, on each lot	1.0 acre ²	1 acre	1 acre	1 acre	1 acre	1 acre
	2.5 acres ³					

1. Land area under surface water is not included in the minimum land area requirements.
2. Due to the highly permeable nature of Soil Type 1, only systems that meet or exceed the required treatment level can be installed.
3. A conventional gravity system in Soil Type 1 is only allowed if it is in compliance with all conditions listed under WAC 246-272-11501(2)(h). One of these limiting conditions is a 2.5 acre minimum lot size.